

ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

1

5

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER 09/14/2020		2. CONTRACT NO. (If any) 68HERC20D0016		6. SHIP TO: a. NAME OF CONSIGNEE CAD	
3. ORDER NO. 68HERC20F0366		4. REQUISITION/REFERENCE NO. See Schedule			
5. ISSUING OFFICE (Address correspondence to) CAD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: W136 Cincinnati OH 45268-0001				b. STREET ADDRESS US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: W136	
				c. CITY Cincinnati	e. ZIP CODE 45268-0001
7. TO: Andrew Parker				f. SHIP VIA	
a. NAME OF CONTRACTOR TETRA TECH, INC.				8. TYPE OF ORDER	
b. COMPANY NAME				<input type="checkbox"/> a. PURCHASE <input checked="" type="checkbox"/> b. DELIVERY REFERENCE YOUR: Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.	
c. STREET ADDRESS 10306 EATON PL STE 340				Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.	
d. CITY FAIRFAX		e. STATE VA	f. ZIP CODE 220302201		
9. ACCOUNTING AND APPROPRIATION DATA See Schedule				10. REQUISITIONING OFFICE OW	

11. BUSINESS CLASSIFICATION (Check appropriate box(es))				12. F.O.B. POINT	
<input type="checkbox"/> a. SMALL <input checked="" type="checkbox"/> b. OTHER THAN SMALL <input type="checkbox"/> c. DISADVANTAGED <input type="checkbox"/> d. WOMEN-OWNED <input type="checkbox"/> e. HUBZone <input type="checkbox"/> f. SERVICE-DISABLED VETERAN-OWNED <input type="checkbox"/> g. WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOSB PROGRAM <input type="checkbox"/> h. EDWOSB					
13. PLACE OF		14. GOVERNMENT B/L NO.		15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) 09/15/2021	
a. INSPECTION Destination	b. ACCEPTANCE Destination			16. DISCOUNT TERMS	

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	DUNS Number: 198549560 TOCOR: Leanne Stahl Max Expire Date: 09/15/2021 Invoice Approver: Leanne Stahl Alt Invoice App: John Healey Continued ...					

SEE BILLING INSTRUCTIONS ON REVERSE	18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.		17(h) TOTAL (Cont. pages)
	21. MAIL INVOICE TO:						
	a. NAME RTP Finance Center						\$193,691.39
	b. STREET ADDRESS (or P.O. Box) US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts						\$193,691.39
c. CITY Durham		d. STATE NC	e. ZIP CODE 27711				17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature) 09/14/2020

ELECTRONIC SIGNATURE

23. NAME (Typed)
Gerold D. Young
TITLE: CONTRACTING/ORDERING OFFICER

ORDER FOR SUPPLIES OR SERVICES

PAGE NO

SCHEDULE - CONTINUATION

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IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER 09/14/2020	CONTRACT NO. 68HERC20D0016	ORDER NO. 68HERC20F0366
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ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
1001	Admin Office: CAD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: W136 Cincinnati OH 45268-0001 Period of Performance: 09/16/2020 to 09/15/2021 Support for Fish Study Data Analysis and Reporting Requisition No: PR-OW-20-00444, PR-OW-20-00648, PR-OW-20-00817 Accounting Info: 20-21-B-28E-000BD4X20-2505-2028CES001- 001 BFY: 20 EFY: 21 Fund: B Budget Org: 28E Program (PRC): 000BD4X20 Budget (BOC): 2505 DCN - Line ID: 2028CES001-001 Funding Flag: Partial Funded: \$0.00 Accounting Info: 20-21-B-28E-000BD4X20-2505 BFY: 20 EFY: 21 Fund: B Budget Org: 28E Program (PRC): 000BD4X20 Budget (BOC): 2505 Funding Flag: Partial Funded: \$0.00 Accounting Info: 20-21-B-28E-000BD4X20-2505-2028CES044- 001 BFY: 20 EFY: 21 Fund: B Budget Org: 28E Program (PRC): 000BD4X20 Budget (BOC): 2505 DCN - Line ID: 2028CES044-001 Funding Flag: Partial Funded: \$191,000.87 Accounting Info: 20-21-B-28E-000B42-2505-2028CES059-001 BFY: 20 EFY: 21 Fund: B Budget Org: 28E Program (PRC): 000B42 Budget (BOC): 2505 DCN - Line ID: 2028CES059-001 Funding Flag: Partial Funded: \$2,690.52 Continued ...				193,691.39	

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))

\$193,691.39

ORDER FOR SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION

PAGE NO
3

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER
09/14/2020

CONTRACT NO.
68HERC20D0016

ORDER NO.
68HERC20F0366

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))

\$0.00

SECTION B - Supplies or Services/Prices

B-1 Local Clauses EPA-B-32-103 LIMITATION OF GOVERNMENT'S OBLIGATION

(a) Severable services may be incrementally funded. Non-severable services shall not be incrementally funded. Contract line item 1001 is severable and may be incrementally funded. For this item, the sum of \$193,691.39 of the total price is presently available for payment and allotted to this contract.

(b) For items identified in paragraph (a) of this clause, the Contractor agrees to perform up to the point at which the total amount payable by the Government, including reimbursement in the event of termination of those items for the Government's convenience, approximates the total amount currently allotted for those items to the contract. The Contractor shall not continue work on those items beyond that point. Subject to the clause entitled "Termination for Convenience of the Government," the Government will not be obligated, under any circumstances, to reimburse the Contractor in excess of the amount payable by the Government in the event of the termination of applicable contract line items for convenience including costs, profit, and estimated termination costs for those line items.

(c) Notwithstanding the dates specified in the allotment schedule in paragraph (h) of this clause, the Contractor will notify the Contracting Officer, in writing, at least 10 days prior to the date when, in the Contractor's best judgment, the work will reach the point at which the total amount payable by the Government, including any cost for termination for convenience, will approximate 75 percent of the total amount currently allotted to the contract for performance of the applicable items. The notification will state (1) the estimated date when that point will be reached and (2) an estimate of additional funding, if any, needed to continue performance of the applicable line items up to the next scheduled date for the allotment of funds identified in paragraph (a) of this clause, or to a substitute date as determined by the Government pursuant to paragraph (d) of this clause. If, after such notification, additional funds are not allotted by the date identified in the Contractor's notification, or by an agreed substitute date, the Contracting Officer will terminate any item(s) for which additional funds have not been allotted, pursuant to the clause entitled "Termination for Convenience of the Government."

(d) The parties contemplate that, subject to the availability of appropriations, the Government may allot additional funds for continued performance of the contract line items identified in paragraph (a) of this clause and will determine the estimated period of contract performance which will be covered by the funds. If additional funds are allotted, the Contracting Officer will notify the Contractor in writing. The Contractor shall not resume performance of the contract line items identified in paragraph (a) until the written notice is received. The provisions of paragraphs (b) through (d) of this clause will apply in like manner to the additional allotted funds and to the new estimated period of contract performance. The contract will be modified accordingly.

(e) The Government may, at any time prior to termination, allot additional funds for the performance of the contract line items identified in paragraph (a) of this clause.

(f) The termination provisions of this clause do not limit the rights of the Government under the clause entitled "Default". The provisions of this clause are limited to the work and allotment of funds for the contract line items set forth in paragraph (a) of this clause. This clause no longer applies once the contract is fully funded.

(g) Nothing in this clause affects the right of the Government to otherwise terminate this contract pursuant to the contract clause entitled "Termination for Convenience of the Government".

(h) The parties contemplate that the Government may obligate funds to this contract in accordance with the following schedule:

RECAPITULATION:

RECAPITULATION OF FUNDING TO DATE BY TASK ORDER PERIOD
CONTRACT NO. 68HERC20D0016
TASK ORDER NO. 68HERC20F0366

Period of Performance - FROM 9/16/2020 through 9/15/2021

<u>FUNDING ACTION</u>	<u>FUNDING</u>
Total Task Order Amount:	\$ 193,691.39
Initial Incremental Funding:	\$ 193,691.39
Balance Unfunded	\$ 0.00

SECTION F - Deliveries or Performance

F-1 Local Clauses EPA-F-12-101 PERIOD OF PERFORMANCE

The period of performance of this Task Order shall be from 9/16/2020 through 9/15/2021 inclusive of all required reports.

SECTION G - Contract Administration Data

G-1 Local Clauses EPA-G-42-101 CONTRACT ADMINISTRATION REPRESENTATIVES

Task Order-Level Contracting Officers Representatives (CORs)/Project Officers for this contract are as follows:

Leanne Stahl, 202-566-0404, stahl.leanne@epa.gov (TOCOR)

John Healey, 202-566-0176, healey.john@epa.gov (Alternate TOCOR)

Contracting Officials responsible for administering this contract are as follows:

Gerold Young, 513-487-2660, Young.Gerold@epa.gov (Contracting Officer)

Matthew Huber, 513-569-7195, huber.matthew@epa.gov (Contract Specialist)

**Performance Work Statement
Contract Number 68HERC20D0016
Task Order Number: 68HERC20F0366**

Project Title: Support for Fish Study Data Analysis and Reporting

Task Order Contracting Officer Representative (TOCOR):

Leanne Stahl
OW/Office of Science and Technology
U.S. EPA, Mail Code 4305T
1200 Pennsylvania Avenue NW
Washington, DC 20460
Phone: (202) 566-0404
FAX: (202) 566-0409
Email: stahl.leanne@epa.gov

Alternate Task Order Contracting Officer Representative (Alt-TOCOR):

John Healey
OW/Office of Science and Technology
U.S. EPA, Mail Code 4305T
1200 Pennsylvania Avenue NW
Washington, DC 20460
Phone: (202) 566-0176
FAX: (202) 566-0409
Email: healey.john@epa.gov

Task Order Type: Time & Materials

Period of Performance and Level of Effort:

Date of award through 12 months
LOE: 1210 hours

PURPOSE OF TASK ORDER

The purpose of this task order is to provide support for preparing and reporting data generated from probability-based national and regional studies of chemical contamination in freshwater fish of the U.S. conducted by OST and its partners and from targeted fish contamination studies conducted by OST. During the period of performance for this Task Order, the specific objectives are to provide support for (1) addressing the data reporting backlog for the 2013-14 National Rivers and Streams Assessment (NRSA) Fish Tissue Study, the 2010 Great Lakes Human Health Fish Tissue (GLHHFTS), and the 2015 Great Lakes Human Health Fish Fillet Tissue Study (GLHHFFTS) and (2) reporting the Fish Plug Evaluation Study data.

BACKGROUND

Since 1998, the U.S. Environmental Protection Agency's (EPA's) Office of Science and Technology (OST) within the Office of Water (OW) has planned and conducted a series of probability-based fish contamination studies. Four of these studies have been national-scale surveys of chemical residues in freshwater fish tissue. The earliest of these studies was the National Study of Chemical Residues in Lake Fish Tissue (1998-2007), which OST conducted in partnership with EPA's Office of Research and Development (ORD), the 10 EPA Regions, and a national network of 58 state, tribal, and federal agencies. The other three national-scale OST studies involved surveys of chemical contamination in the muscle tissue (fillets) of fish from U.S. rivers conducted under EPA's National Rivers and Streams Assessments during 2008-2009, 2013-2014, and 2018-2019, respectively. Each National River and Stream Assessment (NRSA) that OST participated in was co-managed by the Office of Wetlands, Oceans, and Watershed (OWOW) within OW and ORD.

The National Study of Chemical Residues in Lake Fish Tissue (or National Lake Fish Tissue Study) was a statistically based national screening-level survey of chemical residues in freshwater fish tissue. During 2000-2003, field crews collected fish composite samples of predator and bottom-dwelling species from 500 lakes and reservoirs across the lower 48 states. Fillet tissue composites from predator samples and whole-body tissue composites from bottom-dweller samples were analyzed for a large set of persistent, bioaccumulative, and toxic (PBT) chemicals, including mercury, arsenic, all 209 PCB congeners, 46 PBDE congeners, 17 dioxins and furans, 46 pesticides, and 40 semivolatile organic compounds. Fish fillet tissue samples provided data relative to human health, and whole-body fish tissue samples provided data relative to the health of wildlife. National Lake Fish Tissue Study results allowed EPA to estimate the percentage of lakes and reservoirs in the conterminous United States with chemical concentrations in fish that are above levels of potential concern for humans or for wildlife that eat fish. EPA completed data reporting for this study in 2013, but continues to respond to requests for National Lake Fish Tissue Study data.

OST collaborated with OWOW and ORD to conduct a statistically based national study of chemical contamination in fish from U.S. rivers under EPA's 2008-09 NRSA. During the 2008 and 2009 field seasons, OWOW-sponsored field crews collected fish composite samples for the 2008-09 NRSA Fish Tissue Study at 542 river sites across the lower 48 states, which included 164 urban river sites and 378 nonurban river sites. Fillet tissue samples were analyzed for PFAS at 162 urban river sites only. Fillet samples from both the urban and nonurban river sites were analyzed for mercury, selenium, PCBs (21 congeners), PBDEs (8 congeners), and 22 pesticides. Results from this study allowed EPA to estimate the percentage of U.S. river miles containing fish with chemical concentrations in the fillet tissue that are above levels of potential concern for people who eat fish. EPA completed data reporting for this study in 2017.

OST conducted a second statistically based national study of chemical contamination in fish from U.S. rivers under EPA's 2013-14 NRSA. Field crews collected one fish composite sample per site at 353 river sites across the lower 48 states for the 2013-14 NRSA Fish Tissue Study. OST analyzed fillet samples from 353 river sites for mercury, from 349 river sites for 13 PFAS, and from 223 river sites for the full set of 209 PCB congeners. OST is facing a serious backlog

in reporting results for the 2013-14 NRSA Fish Tissue Study. In 2018, EPA developed a draft technical journal article reporting study results for mercury, PCBs, and PFAS, then coordinated with ORD to complete internal peer review of the draft journal article. OW clearance for submission of this technical journal article for publication has been pending since March 2019.

OST is conducting a third statistically based national study of chemical contamination in fish from U.S. rivers under EPA's ongoing 2018-19 NRSA. Field crews collected one fish composite sample per site at 291 river sites across the lower 48 states for the 2018-19 NRSA Fish Tissue Study. OST is analyzing fillet samples from each of the 291 river sites for mercury, 209 PCB congeners, and 33 PFAS. EPA expects to begin statistical analysis of each chemical-specific fillet tissue data file in the fall of 2020. EPA can begin the data reporting process for this study after completing statistical analyses of the fillet tissue data files.

In addition, OST partnered with the Great Lakes National Program Office (GLNPO) to conduct three probability-based studies of contamination in Great Lakes fish under the Great Lakes portion of EPA's National Coastal Condition Assessments. These regional-scale studies are referred to as the 2010 Great Lakes Human Health Fish Tissue Study (2010 GLHHFTS), the 2015 Great Lakes Human Health Fish Fillet Tissue Study (2015 GLHHFFTS), and the 2020 Great Lakes Human Health Fish Fillet Tissue Study (2020 GLHHFFTS). OWOW in OW and ORD have co-managed each National Coastal Condition Assessment (NCCA) that OST and GLNPO have participated in. There are critical backlogs in reporting data from the 2010 GLHHFTS and the 2015 GLHHFFTS.

In 2010, OST and GLNPO conducted the first statistically based regional (Great Lakes-wide) study of chemical residues in Great Lakes fish under the Great Lakes portion of the NCCA called the 2010 Great Lakes Human Health Fish Tissue Study (2010 GLHHFTS). ORD statisticians randomly selected 225 nearshore sites (defined as sites with depths up to 30 m or distances up to 5 km from shore) in the five Great Lakes (45 nearshore sites per lake) for the 2010 NCCA. Field crews collected one fish sample per site for the 2010 GLHHFFTS at a statistically representative subset of 157 nearshore sites (about 30 nearshore sites per lake). OST and GLNPO analyzed fillet samples from each of the 157 nearshore sites for mercury, 209 PCB congeners, 13 PFAS, 52 PBDE congeners, and some omega-3 fatty acids. Fillet tissue results for PFAS were published in *Science of the Total Environment* in 2014 and fillet tissue results for fatty acids were published in the *Journal of Great Lakes Research* in 2017. Reporting on the remaining 2010 GLHHFTS fillet tissue data for mercury, PCBs, and PBDEs is pending.

In 2015, OST and GLNPO conducted a second statistically based Great Lakes-wide study of chemical residues in Great Lakes fish under the NCCA called the 2015 Great Lakes Human Health Fish Fillet Tissue Study (2015 GLHHFFTS). As in 2010, ORD statisticians randomly selected 225 nearshore sites in the 5 Great Lakes (45 sites per lake) for the 2015 NCCA. Field crews collected one fish sample per site at a statistically representative subset of 152 nearshore sites (about 30 sites per lake) for the 2015 GLHHFFTS. Fillet samples from each of the 152 nearshore sites were analyzed for mercury, 209 PCB congeners, 13 PFAS, 17 dioxins and furans, and some omega-3 and omega-6 fatty acids. To date, EPA has not reported on any of the fillet tissue data generated for the 2015 GLHHFFTS.

OST and GLNPO are currently conducting a third statistically based Great Lakes-wide study of chemical residues in Great Lakes fish under the NCCA called the 2020 Great Lakes Human Health Fish Fillet Tissue Study (2020 GLHHFFTS). As for the 2010 NCCA and the 2015 NCCA, ORD statisticians randomly selected a total of 225 nearshore sites in the five Great Lakes, which included 45 nearshore sites per lake. In contrast to the previous two Great Lakes human health fish tissue studies, field crews are collecting one fish sample per site at all 225 nearshore sites for the 2020 GLHHFFTS. From each of the 225 nearshore sites that are successfully sampled, EPA is planning to analyze fillet samples for mercury, 209 PCB congeners, 7 or 8 PCB aroclors, a to be determined number (TBD) of PFAS, and some omega-3 and omega-6 fatty acids. EPA cannot begin the data reporting process for the 2020 GLHHFFTS until the fish samples are collected (which could extend into 2021), fillet samples are prepared (which could extend into 2022), fillet samples are analyzed and the analytical results undergo quality control review (which could continue into 2023), and statistical analysis of the analytical data is completed (in the latter half of 2023 or early 2024). Based on this possible extended schedule due to the covid-19 pandemic, it could take until 2024 before EPA is ready to begin reporting 2020 GLHHFFTS data.

OST has conducted two other fish tissue studies in addition to the four probability-based national studies of chemical contamination in fish from U.S. lakes and reservoirs (a single study) and from U.S. rivers (three studies), along with the three probability-based regional studies of chemical residue in Great Lakes fish. Both of these studies had targeted sampling designs and include the National Pilot Study of Pharmaceuticals and Personal Care Products (PPCPs) in Fish Tissue (also referred to as the Pilot Study of PPCPs in Fish) and the Fish Plug Evaluation Study.

OST initiated the Pilot Study of PPCPs in Fish during 2006 to investigate the occurrence of PPCP chemicals in fish tissue. The targeted design for the study involved collecting fish samples from five effluent-dominated streams in the vicinity of wastewater treatment plant (WWTP) discharges and one reference site, then analyzing fillets and livers for 24 pharmaceutical compounds using a high performance liquid chromatography-tandem mass spectrometry (HPLC-MS/MS) method and fillets only for 12 personal care products using a gas chromatography – tandem mass spectrometry (GC-MS/MS) method. Results from this study were published in Environmental Toxicology and Chemistry in 2009. EPA developed a final technical report for this study under a previous contract, and management approval for release of that report is pending.

In 2017, OST planned and began implementing a new study called the Fish Plug Evaluation Study. The design of the study included two phases, the mercury phase and the selenium phase, to address the following objectives:

- To test whether fish fillet plug samples and analysis can serve as a reliable surrogate for homogenizing and analyzing whole fillet tissue to monitor mercury concentrations in fish (mercury phase), and
- To investigate if it is technically feasible to collect fillet plug samples and analyze them for monitoring selenium levels in fish to comply with EPA's tissue-based water quality criterion for selenium (selenium).

During the first two years of the Fish Plug Evaluation Study, OST completed fish sample collection, fillet tissue sample preparation, and chemical analyses of fillet tissue samples for both the mercury phase and the selenium phase. In 2019, OST completed development of the statistical analysis plan for the mercury phase of the study, statistical analysis of the mercury analytical data, and initial reporting of the mercury results in a poster presentation for the 40th SETAC North American annual meeting in Toronto, Canada. In March and April 2020, OST completed development of the statistical analysis plan for the selenium phase of the study and statistical analysis of the selenium phase analytical data. OST initiated reporting of the Fish Plug Evaluation Study results in June 2020. To date, OST has developed a partial draft technical journal article to report the study results. OST anticipates completing data reporting for this study during the Task Order period of performance.

SCOPE OF WORK

Contractor activities to address the Task Order (TO) purpose and objectives for supporting EPA freshwater fish contamination study data preparation and reporting are described under the following three Tasks in this TO performance work statement (PWS):

- Task 1: Administrative Reporting, Communication, and Coordination
- Task 2: Support for Reviewing, Summarizing, and Preparing EPA Fish Contamination Study Data for Reporting
- Task 3: Support for Reporting EPA Fish Contamination Study Data

The Contractor activities required to support the Tasks under this TO are specified in this TO PWS Scope of Work, as well as in the following Tasks in Sections 3 and 4 of the Contract-level PWS for Contract Number 68HERC20D0016:

Contract-level PWS Section 3

- Task 3.3: Technical Guidance, Report Development, and General Program Analysis
- Task 3.4: Compilation and Analysis of National and International Environmental Data
- Task 3.6: Environmental Assessments

Contract-level PWS Section 4

- Task 4.1: Quality Management System
- Task 4.4: Quality Assurance Reporting
- Task 4.5: Data Integrity

Regarding the Quality Assurance and Quality Control (QA/QC) support activities required in this Task Order, the Contractor shall follow the procedures described in detail in Task 2 to conduct QC reviews of the statistical analysis input files and statistical analysis output files for each applicable EPA human health fish tissue study (Subtasks 2.1 and 2.2, respectively). In addition, the data summaries and report graphics generated by the Contractor under Subtasks 2.3 and 2.4, respectively, shall undergo independent QC reviews for accuracy and completeness prior to submission of these deliverables to the EPA TOCOR for review and approval.

Task 1: Administrative Reporting, Communication, and Coordination

Under Task 1, the Contractor shall be responsible for preparing and submitting monthly progress and financial reports, for establishing and maintaining regular communication with the EPA Task Order Contracting Officer Representative (TOCOR), and for coordinating with various professionals involved with EPA fish contamination study data analysis, data review, data preparation, and data reporting. Subtasks 1.1, 1.2, and 1.3 describe specific requirements related to each of these responsibilities.

Subtask 1.1: Prepare and Submit Progress and Financial Reports

The Contractor shall prepare and submit monthly progress and financial reports in accordance with requirements specified in Contract Number 68HERC20D0016. The monthly progress report shall describe project status and list deliverables completed for each Task, identify issues and issue resolution, summarize quality assurance and quality control (QA/QC) activities, and present next steps. The monthly financial reports shall include monthly expenditures and expenditures to date. In addition, the Contractor shall perform other Task Order (TO) administration activities as described under General Requirements for Task Order Administration, such as preparation of information and ad hoc reports.

Subtask 1.2: Establish and Maintain Communication with the EPA TOCOR

The Contractor shall establish communication with the EPA TOCOR within one business day after award of this Task Order and schedule a project kickoff conference call within three business days after Task Order award. The EPA TOCOR will draft an agenda for the kickoff call and distribute the agenda before the kickoff call. In addition, the Contractor shall develop a schedule to communicate regularly with the EPA TOCOR throughout the period of performance for the Task Order.

Subtask 1.3: Coordinate with Professionals Involved in EPA Fish Contamination Study Data Analysis, Preparation, and Reporting

The Contractor shall coordinate with professionals that are involved in EPA fish contamination study data analysis, preparation, and reporting activities to provide support for development of fish study interim and final reports. The final reports will generally be in the form of technical journal articles or government reports produced by EPA. Required Contractor coordination includes, but is not limited to, the following types of professionals:

- Scientists and statisticians in other EPA offices, such as the Office of Research and Development (ORD), the Office of Wetlands, Oceans, and Watersheds (OWOW) within the Office of Water (OW), and the Great Lakes National Program Office (GLNPO).
- Other EPA contractors providing scientific and technical support for EPA fish contamination studies (e.g., CSRA/GDIT scientists and statisticians).
- Coauthors and peer reviewers for technical journal articles or for EPA reports and technical support documents.
- Technical journal editors and other relevant publication staff.

When coordinating with these professionals or performing work under this Task Order, the Contractor shall immediately notify the EPA TOCOR about any questions, issues, problems, or delays that arise. The EPA TOCOR will provide answers to Contractor questions and schedule time with the Contractor to discuss and resolve issues, problems, or impacts of delays.

Task 2: Support for Reviewing, Summarizing, and Preparing EPA Fish Contamination Study Data for Reporting

Under Task 2, the Contractor shall provide support for reviewing, summarizing, and preparing EPA fish contamination study data before final data reporting. These fish contamination study data include EPA fish contamination and related data from fish tissue studies conducted by OST (e.g., the Fish Plug Evaluation Study) and conducted by OST in collaboration with other EPA offices, such as GLNPO, ORD, and OWOW (e.g., 2010 GLHHFTS and 2013-14 NRSA Fish Tissue Study). Specific activities for conducting QC reviews of fish contamination study data statistical analysis input files and statistical analysis output files are described in Subtask 2.1 and Subtask 2.2, respectively. Subtask 2.3 provides details about support for summarizing fish contamination study data, and Subtask 2.4 describes support required for preparation of graphics for fish contamination study final data reporting.

Subtask 2.1: Conduct QC Reviews of EPA Fish Contamination Study Statistical Analysis Input Files

The Contractor shall provide support for conducting QC reviews of EPA fish contamination study input files for statistical analysis of analytical data generated from various human health fish tissue studies conducted by OST and its partners. Under a separate EPA contract, the OST fish tissue study analytical support contractor prepares a statistical analysis input file for each target chemical analyzed for a particular human health fish tissue study. The Contractor is responsible for conducting independent QC reviews of these statistical analysis input files.

In recent months, OW management directed OST to revise human health benchmarks included for interpretation of statistical analysis results in a subset of the human health fish tissue study chemical-specific statistical analysis input files, which includes the PCB and PFAS statistical analysis input files prepared for the 2008-09 and 2013-14 NRSA Fish Tissue Studies, the NCCA 2010 GLHHFTS and 2015 GLHHFTS, along with the dioxin and furan statistical analysis input

file prepared for the NCCA 2015 GLHHFFTS. Revising the PCB, PFAS, and dioxin and furan human health benchmarks requires preparing revised chemical-specific statistical analysis input files, conducting QC reviews of the revised files, and completing statistical reanalysis of each revised file. These nine statistical analysis input files for PCBs, PFAS, and dioxins and furans have undergone revision, QC review, and statistical reanalysis under previous work assignments. OW management also directed OST to conduct external peer review of the assumptions applied to revise the PCB, PFAS, and dioxin and furan human health benchmarks. Initiation of that external peer review is pending. Depending on the outcome of the external peer review, some or all of the PCB, PFAS, and dioxin and furan human health benchmarks may undergo revision again and require preparation of a second set of up to nine revised statistical analysis input files for QC review and statistical reanalysis. The Contractor shall provide support for QC review of any of the nine PCB, PFAS, or dioxin and furan statistical analysis input files that require incorporation of revised human health benchmarks based on external peer review results during the period of performance for this Task Order. The EPA TOCOR will provide the chemical-specific analytical data files that require Contractor support for QC reviews to the Contractor.

The human health fish tissue study chemical-specific statistical analysis input files are Excel files with two tabs that contain analytical (or chemical analysis) results (i.e., fillet tissue concentrations and related laboratory and data quality review information) in the first tab (Tab 1) and fish composite sample biological data and related field sampling information, along with fish sample preparation information, in the second tab (Tab 2). The Contractor shall complete QC reviews of data and related information in both tabs of each applicable chemical-specific statistical analysis input data file. In completing these QC reviews, the Contractor shall ensure that data and related information for valid human health fish composite samples in each chemical-specific statistical analysis input file are complete and accurate and that each of these files contains no data and related information for invalid fish samples. During these QC reviews, the Contractor shall complete specific activities that include, but are not limited to, the following:

- *Verifying the correct number of analytical records in Tab 1 of each human health fish tissue study chemical-specific statistical analysis input file.* The Contractor shall perform QC checks to verify the correct number of analytical records in Tab 1 of each human health fish tissue study chemical-specific statistical analysis input file. These QC checks shall include verifying the correct number of analytical records for each valid fish composite sample in the chemical-specific statistical analysis input files and verifying the correct number of total analytical records in Tab 1 of each of the chemical-specific statistical analysis input files. The Contractor shall document any errors in the analytical record counts identified during the QC checks.
- *Reviewing all of the fish sampling and related field data in Tabs 1 and 2 of each human health fish tissue study chemical-specific statistical analysis input file.* The Contractor shall complete QC reviews of all of the fish sampling (e.g., fish composite sample identification numbers, fish species, fish specimen identification numbers and lengths, etc.) and related field data (e.g., sampling site identification numbers, sampling site locations, etc.) in Tabs 1 and 2 of each human health fish tissue study chemical-specific statistical analysis input file. The Contractor shall use the final quality-checked Fish Sample Preparation Master Instructions spreadsheet that applies to each human health

fish tissue study chemical-specific statistical analysis input file to complete these QC reviews and record any errors or inconsistencies identified during the fish sampling and related field data QC reviews.

- *Performing QC reviews of chemical concentration data versus (vs.) human health fish tissue benchmarks to confirm the accuracy of all concentration classifications.* The Contractor shall perform QC reviews of chemical concentration data vs. human health fish tissue benchmarks (formerly referred to as human health screening values) in Tab 1 of each human health fish tissue study chemical-specific statistical analysis input file to confirm the accuracy of chemical concentration classifications. These chemical concentration classifications are entered in Tab 1 of each chemical-specific statistical analysis input file as either “Does Not Exceed” (i.e., the measured chemical concentration is less than or equal to a human health fish tissue benchmark) or as “Exceeds” (i.e., the measured chemical concentration is greater than a human health fish tissue benchmark). There is usually only one target chemical in a chemical-specific statistical analysis input file that has one or more human health fish tissue benchmarks associated with it (e.g., total PCBs in a PCB statistical analysis input file and PFOS in a PFAS statistical analysis input file). The Contractor shall complete QC checks for 100% of the chemical concentration classifications in Tab 1 of each human health fish tissue study chemical-specific statistical analysis input file. The total number of chemical concentration classifications in each chemical-specific statistical analysis input file that require QC checks varies based on the number of target chemicals with human health fish tissue benchmarks in the file, the number of human health fish tissue benchmarks associated with a target chemical, and the number of detected chemical concentrations for each target chemical with human health fish tissue benchmarks. For example, assume the following:
 - PFOS is the only target chemical in the PFAS statistical analysis input file with human health fish tissue benchmarks.
 - There are two human health fish tissue benchmarks for PFOS in the PFAS analytical data file.
 - Each of the 152 valid fillet composite samples had detected chemical concentrations for PFOS.

Given these assumptions, Tab 1 of the PFAS data file would contain a total of 304 PFOS concentration classifications that would require QC checks (i.e., 1 target chemical [PFOS] x 2 PFOS human health fish tissue benchmarks x 152 detected PFOS concentrations). After completing QC checks on 100% of the target chemical concentration classifications, the Contractor shall document any chemical concentration classification errors identified during QC reviews of the chemical-specific statistical analysis input files.

- *Conducting QC reviews of fish sample preparation information in Tab 2 of each human health fish tissue study chemical-specific statistical analysis input file.* The Contractor shall conduct QC reviews of fish sample preparation information in Tab 2 of each human health fish tissue study chemical-specific statistical analysis input file. The Contractor shall focus these reviews on the accuracy and consistency of fish sample preparation

information in the data file columns identifying which fish specimens were included in the preparation of a fillet composite sample for chemical analysis (i.e., all fish specimens in a valid fish composite sample that met the 75% fish length rule) and providing instructions for preparing fillet tissue composite samples for chemical analysis from each valid fish composite sample. The Contractor shall document any errors and inconsistencies identified during QC reviews of the entries in these columns of human health fish tissue study chemical-specific statistical analysis input files.

- *Reporting errors and inconsistencies identified during QC reviews of each human health fish tissue study chemical-specific statistical analysis input file to the EPA TOCOR.* The Contractor shall summarize and report any errors and inconsistencies identified and documented during QC reviews of each human health fish tissue study chemical-specific statistical analysis input file to the EPA TOCOR for correction. These QC review results include, but are not limited to, errors in Tab 1 analytical record counts, errors and inconsistencies in Tab 1 and Tab 2 fish sampling and related field data entries, errors in Tab 1 chemical concentration classifications, and errors and inconsistencies in Tab 2 fish sample preparation information. The Contractor shall prepare a report that summarizes QC review results for each of the human health fish tissue study chemical-specific statistical analysis input files and submit the report to the EPA TOCOR. The EPA TOCOR will review the report and provide corrected human health fish tissue study chemical-specific statistical analysis input files for final QC review. The Contractor shall conduct final QC reviews of the revised human health fish tissue study chemical-specific statistical analysis input files to confirm that all errors have been corrected and all inconsistencies have been resolved appropriately, then report the final QC review results to the EPA TOCOR.

Subtask 2.2: Conduct QC Reviews of EPA Fish Contamination Study Statistical Analysis Output Files

The Contractor shall provide support for conducting QC reviews of EPA fish contamination study statistical analysis output files. During the period of performance for this Task Order, these files include the 2018-19 NRSA Fish Tissue Study statistical analysis output files for each of the target chemicals (mercury, PCBs, and PFAS). These files may also include, as applicable, any of the nine PCB, PFAS, or dioxin and furan statistical reanalysis output files generated from reanalysis of the statistical reanalysis input files described in Subtask 2.1 (i.e., statistical reanalysis input files from the 2008-09 and 2013-14 NRSA Fish Tissue Studies, the NCCA 2010 GLHHFTS, and the NCCA 2015 GLHHFTS).

Agency statisticians at the ORD facility in Corvallis, Oregon are responsible for completing statistical analyses of data from EPA fish contamination studies (also referred to as EPA human health fish tissue studies), then sending the statistical analysis results for each human health fish tissue study to OST. These results consist of six statistical output files for each fish tissue study target chemical, so the EPA statisticians will generate a total of 18 statistical output files for the 2018-19 NRSA Fish Tissue Study (6 statistical analysis output files per target chemical x 3 target chemicals). The set of six statistical analysis output files for each target chemical is listed and described below.

- **‘Estimates_Pct’:** This is an Excel file that contains statistically derived percentiles for all fish species combined and for 4-5 individual, abundant fish species.
- **‘Estimates_CDF’:** This is an Excel file that contains cumulative distribution estimates and 95% confidence intervals for statistically weighted chemical concentrations of all fish species combined and for statistically weighted chemical concentrations of 4-5 individual, abundant fish species.
- **‘CDF_Plots’:** This is a PDF file that contains individual cumulative distribution function (CDF) graphs for each chemical or congener. There are two types of graphs in this file, one set of graphs for all fish species combined and a set of graphs for each of the 4-5 individual, abundant fish species.
- **‘Screen_Estimates’:** This is an Excel file that contains all HH benchmarks, estimates (%) for the sampled population exceeding or not exceeding each benchmark, and 95% confidence intervals for estimates of all fish species combined and for estimates for each of the 4-5 individual, abundant fish species.
- **‘Concentration_Change_Estimates’:** This is an Excel file with mean weighted chemical concentrations for each survey year and a difference estimate between years (including 95% confidence intervals) for national weighted chemical concentration changes and changes in the weighted chemical concentrations for the three NARS ecoregions.
- **‘Screen_Change_Estimates’:** This is an Excel file with percent exceedance values for each HH benchmark for each survey year and a difference estimate (including 95% confidence intervals) for national percent exceedance changes and changes in percent exceedances for the three NARS ecoregions.

The Contractor shall complete QC reviews of fish tissue study data and related information in the statistical analysis results contained in each set of six chemical-specific statistical analysis output data files for the 2018-19 NRSA Fish Tissue Study and for other applicable EPA fish tissue studies identified above. In conducting these QC reviews, the Contractor shall complete specific activities that include, but are not limited to, the following:

‘Estimates_Pct’: For this first chemical-specific statistical analysis output file, the Contractor shall perform the following QC checks for accuracy and completeness:

- Confirm that the file contains the correct cumulative number of samples for each chemical or chemical group
- Confirm that the file includes concentration estimates for all of the requested percentiles (5th, 10th, 25th, 50th, 75th, 90th, and 95th percentile values)
- Confirm that the file contains correct mean calculations
- Confirm that the file includes all of the statistics for all fish species combined, as well as for each of the individual, abundant fish species

‘Estimates_CDF’: For this second chemical-specific statistical analysis output file, the Contractor shall perform the following QC checks for accuracy and completeness:

- Confirm that ‘NResp’ matches the total sample count for each chemical or chemical group
- Confirm that the chemical concentration range matches the concentration range in the corresponding statistical analysis input file
- Confirm that ‘Estimate.P’ begins with the first (lowest) concentration and extends to 100
- Confirm that all data are available to use to generate custom CDF graphs (in R statistical software, which is abbreviated as “R”)
- Confirm that cumulative distribution data are included for all fish species combined as well as for each of the individual, abundant fish species

‘CDF_Plots’: For this third chemical-specific statistical analysis output file, the Contractor shall perform the following QC checks for accuracy and completeness:

- Confirm that graphs are included for all chemicals or compounds in chemical groups
- Confirm that the sampled populations on each graph have the correct totals and units
- Confirm that the minimum and maximum extent of each graph is correct and matches data in the corresponding statistical analysis input file
- Confirm that each plot compares exactly with custom graphs that the Contractor prepares in R (to include the HH benchmarks)
- Confirm that cumulative distribution plots are included for all fish species combined as well as for each of the individual, abundant fish species

‘Screen_Estimates’: For this fourth chemical-specific statistical analysis output file, the Contractor shall perform the following QC checks for accuracy and completeness:

- Confirm that all requested HH benchmarks are included and correct
- Confirm that ‘NResp’ numbers for exceeded and not exceeded counts total the cumulative number of samples for each chemical
- Confirm that exceedance percentages (and non-exceedance percentages) are presented for each HH benchmark, and that combined they = 100%
- Confirm that HH benchmark statistics are included for all fish species combined as well as for each of the individual, abundant fish species

‘Concentration_Change_Estimates’: For this fifth chemical-specific statistical analysis output file, the Contractor shall perform the following QC checks for accuracy and completeness:

- Confirm that ‘NResp_1’ and ‘NResp_2’ match the total number of samples collected in each survey/year
- Confirm that means are presented for each survey (year) and match means in the ‘Estimates_Pct’ file for that survey/year
- Confirm that ‘DiffEst’ equals the difference between ‘Estimate 1’ (for the first survey) and ‘Estimate 2’ (for the second survey)
- Confirm that concentration difference estimates are included for all fish species combined as well as for each of the individual, abundant fish species

‘Screen_Change_Estimates’: For this sixth chemical-specific statistical analysis output file, the Contractor shall perform the following QC checks for accuracy and completeness:

- Confirm that all requested HH benchmarks are included and correct
- Confirm that ‘NResp_1’ and ‘NResp_2’ numbers in the exceeded and not exceeded columns match the total the number of samples for each survey
- Confirm that exceedance percentages (and non-exceedance percentages) are presented for each HH benchmark, and that combined they = 100%
- Confirm that ‘DiffEst.P’ equals the difference between ‘Estimate.P_1’ (for the first survey) and ‘Estimate.P_2’ (for the second survey)
- Confirm that HH benchmark difference estimates are included for all fish species combined as well as for each of the individual, abundant fish species

The Contractor shall summarize and report any errors and omissions identified and documented during QC reviews of the six human health fish tissue study chemical-specific statistical analysis output files for each applicable EPA human health fish tissue study to the EPA TOCOR. The EPA TOCOR will review and forward each QC review report of errors and omissions in any of the chemical-specific statistical analysis output files to the EPA statisticians who will reanalyze the fish tissue data for the impacted results to produce corrected statistical analysis output files. The EPA TOCOR will provide the Contractor with corrected statistical analysis output files for final QC review. The Contractor shall conduct final QC reviews of the corrected chemical-specific statistical analysis output files to confirm that all errors and omissions have been correctly addressed, then report the final QC review results to the EPA TOCOR.

Subtask 2.3: Summarize EPA Fish Contamination Study Results

The Contractor shall provide support for summarizing EPA fish contamination study results. These results include biological results summarized in fish tissue study-specific human health fish sample collection master spreadsheets and included in chemical-specific statistical analysis input files for each study, analytical results and related data in the chemical-specific statistical analysis input files for each fish tissue study, and statistical results from the chemical-specific statistical analysis output files for each fish tissue study. For each applicable EPA human health fish tissue study, the Contractor shall prepare data and related information summaries that include, but are not limited to, the following:

- Fish composite sample summary tables
- Percentile data summary tables for each chemical or chemical group included in a specific human health fish tissue study that contain statistical estimates of fish tissue concentrations for percentile data derived for all fish species combined and for each of the individual abundant fish species
- Human health benchmark data summary tables that contain chemical-specific results for a study
- High resolution CDF plots (in color) that provide applicable human health benchmark overlays on plots of the chemical-specific cumulative distribution functions for a study
- Mean concentration change estimate summary tables for each applicable chemical or chemical group in a study

Fish composite sample summary tables: The Contractor shall prepare a fish composite sample summary table for each applicable EPA human health fish tissue study to identify abundant fish species prior to statistical analyses of the chemical-specific analytical data in each statistical analysis input file. Each fish composite sample summary table shall contain the following specific data and related information:

- Common name for each fish species (taken from statistical analysis input files)
- Scientific name for each fish species (taken from statistical analysis input files)
- Family name for each fish species (taken from statistical analysis input files)
- Number of fish composite samples for each fish species (taken from statistical analysis input files)
- Percentage of the total fish composite samples for each fish species (calculated using information taken from statistical analysis input files)

In preparing the fish composite sample summary tables, the Contractor shall use formats consistent with formats developed for these tables in earlier EPA human health fish tissue studies. The EPA TOCOR will provide the Contractor with examples of fish composite sample summary tables and the corresponding human health fish sample collection master spreadsheets from earlier human health fish tissue studies.

Percentile data summary tables: The Contractor shall prepare a percentile data summary table for each chemical or chemical group included in an applicable EPA human health fish tissue study that contains statistical estimates of fish tissue concentrations for specified percentile values derived for all fish species combined and for each of the individual, abundant fish species. Each percentile data summary table shall contain the following specific data and related information:

- Number of detections for each chemical or chemical group (taken from the statistical analysis input files)
- Method detection limits (MDLs) (taken from statistical analysis input files)
- Concentration estimates for the seven specified percentiles, including the 5th, 10th, 25th, 50th, 75th, 90th, and 95th percentiles (taken from the statistical analysis output files)
- Maximum measured fish tissue concentrations (taken from analytical data in the statistical analysis input files)
- Frequency of occurrence for each single chemical or for each individual chemical in a chemical group (including congeners), which is calculated from detection data in the statistical analysis input files

In preparing the percentile data summary tables, the Contractor shall use formats consistent with formats developed for these tables in earlier EPA human health fish tissue studies. The EPA TOCOR will provide the Contractor with examples of percentile data summary tables from earlier human health fish tissue studies.

Human health benchmark data summary tables: The Contractor shall prepare a human health benchmark data summary table containing information for each chemical or chemical group included in an applicable EPA human health fish tissue study. Each human health benchmark data summary table shall contain the following specific data and related information:

- Specific human health benchmarks for each chemical or chemical group (taken from either the statistical analysis input files or the statistical analysis output files)
- Total sampled population estimates by chemical (taken from the statistical analysis output files)
- Percent exceedances for each chemical-specific human health benchmark (taken from the statistical analysis output files)
- Number of river miles or Great Lakes nearshore area exceeding each chemical-specific human health benchmark (calculated from chemical-specific total sampled population estimates and from percent exceedances for each chemical-specific human health benchmark in the statistical analysis output files)

In preparing the human health benchmark data summary tables, the Contractor shall use formats consistent with formats developed for these tables in earlier EPA human health fish tissue studies. The EPA TOCOR will provide the Contractor with examples of human health benchmark data summary tables from earlier human health fish tissue studies.

High resolution CDF plots: The Contractor shall prepare high resolution CDF plots (in color) that provide applicable human health benchmark overlays on plots of the chemical-specific cumulative distribution functions associated with an applicable EPA human health fish tissue study. The Contractor shall use results from the chemical-specific ‘CDF_plots’ and ‘Estimates_CDF’ statistical analysis output files to generate a high resolution plot for each of the chemical-specific CDFs following a process that includes the specific steps listed below:

- Adjusting existing R code (developed to generate CDF plots for earlier EPA human health fish tissue studies) to include any new or additional benchmarks
- Adjusting the R code to accommodate the concentration range on the x-axis of each plot (taken from the statistical analysis input files)
- Adjusting the R code to accommodate the size of each chemical-specific sampled population estimate on the y-axis (taken from the statistical analysis output files)
- Proofing the R output and resulting graphics to confirm that the applicable chemical-specific human health benchmark overlay(s) are on the CDF plot
- Deriving the y-intercept (using R) to identify the exceedance percentage and comparing that with the corresponding exceedance percentage in the ‘Estimates_CDF’ statistical analysis output file to confirm accuracy

Mean concentration change estimate summary tables: The Contractor shall prepare a summary table that contains mean fish tissue concentration change estimates for each chemical or chemical group included in an applicable EPA human health fish tissue study. The Contractor shall use results from each chemical-specific ‘Screen_Change_Estimates’ statistical analysis output file associated with an applicable human health fish tissue study to prepare these summary tables. Each mean concentration change estimate summary table shall contain the following specific data and related information:

- Number of fish tissue samples analyzed for a specific chemical or chemical group (taken from either the statistical analysis input files or the statistical analysis output files)
- Chemical-specific mean fish tissue concentrations for each study (taken from the statistical analysis output files)

- Chemical-specific exceedance percentages for each study (taken from the statistical analysis output files)
- Concentration change estimates between the two studies (taken from the statistical analysis output files)
- Exceedance percentage change estimates between the two studies (taken from the statistical analysis output files)

In preparing the mean concentration change estimate summary tables, the Contractor shall use formats consistent with formats developed for these tables in earlier EPA human health fish tissue studies. The EPA TOCOR will provide the Contractor with examples of mean concentration change estimate summary tables from earlier human health fish tissue studies.

The Contractor shall subject each of the draft EPA fish contamination study results summaries to independent QC reviews for accuracy and completeness by Contractor staff not involved in development of the results summaries and resolve any QC issues identified during the independent QC reviews of the results summaries before submitting these draft deliverables to the EPA TOCOR for review and comment. The Contractor shall incorporate EPA TOCOR comments on draft results summaries to prepare final results summaries and submit the final results summaries to the EPA TOCOR for review and approval.

Subtask 2.4: Prepare EPA Fish Contamination Study Graphics for Interim and Final Reports

The Contractor shall provide support for preparing graphics for EPA fish contamination study interim and final reports. To provide this support, the Contractor shall assign staff with graphic development skills for preparing a broad range of graphics and with the experience necessary to apply fish contamination study data appropriately in the context of the fish study design and objectives during graphic development. The Contractor shall prepare various types of graphics for interim and final reports of EPA fish contamination study results that include, but are not limited to, the following:

- National or regional maps of fish sampling locations
- Organization charts of fish study participants
- Tables summarizing a wide variety of fish contamination study information that includes, but is not limited to, the following:
 - Study design elements
 - Fish sampling locations
 - Fish species collected for a study
 - Target chemicals selected for a study
 - Fish tissue sample analysis methods
 - Analytical reporting limits (e.g., method detection limits (MDLs) and quantitation limits (QLs))
 - Analytical QA/QC results

- Analytical and statistical fish tissue concentration results (e.g., fish tissue concentration percentiles for weighted concentrations, minimum and maximum measured concentrations for unweighted concentrations, etc.)
- Chemical-specific human health screening values used to interpret statistical analysis results
- Various types of graphs and plots displaying fish contamination study results that include, but are not limited to, the following:
 - Bar graphs displaying a variety of results (e.g., number of detections by chemical)
 - Box and whisker plots of chemical-specific concentrations in each abundant fish species
 - Pie charts displaying human health screening value percent exceedance results for each target chemical
 - Scatter plots to determine relationships between variables (e.g., plots of target chemical concentrations vs. lipid content in fish tissue samples from a study)
 - Graphs of chemical-specific cumulative distribution functions for chemical-specific sampled populations

The Contractor shall subject each of the draft EPA fish contamination study graphics to independent QC reviews for accuracy and completeness by Contractor staff not involved in development of the graphics and resolve any QC issues identified during the independent QC reviews of the graphics before submitting these draft deliverables to the EPA TOCOR for review and comment. The Contractor shall incorporate EPA TOCOR comments on draft graphics to prepare final graphics and submit the final graphics to the EPA TOCOR for review and approval.

Task 3: Support for Reporting EPA Fish Contamination Study Data

Under Task 3, the Contractor shall provide support for reporting EPA fish contamination and related data from fish tissue studies conducted by OST (e.g., the Fish Plug Evaluation Study) and conducted by OST in collaboration with other EPA offices, such as GLNPO, ORD, and OWOW (e.g., 2010 GLHHFTS and 2013-14 NRSA Fish Tissue Study). The focus for this Task Order period of performance is to complete final data reporting for four EPA fish tissue studies, including the 2013-14 NRSA Fish Tissue Study, the NCCA 2010 Great Lakes Human Health Fish Tissue Study, the NCCA 2015 Great Lakes Human Health Fish Fillet Tissue Study, and the Fish Plug Evaluation Study. Final reports for these studies are being developed as technical journal articles, and they are currently in various stages of development. EPA plans to combine the data reporting for the 2010 GLHHFTS and the 2015 GLHHFTS into a single technical journal article. Specific details about completing three final reports for these four fish tissue studies are described in Subtask 3.1 (2013-14 NRSA Fish Tissue Study final report), Subtask 3.2 (Combined final report for the 2010 GLHHFTS and the 2015 GLHHFTS), and Subtask 3.3 (Fish Plug Evaluation Study final report).

Subtask 3.1: Report 2013-14 NRSA Fish Tissue Study Data

The Contractor shall provide support for reporting 2013-14 NRSA Fish Tissue Study data. This support shall consist of providing technical and logistical support to complete development of a

technical journal article reporting 2013-14 NRSA Fish Tissue Study results for mercury, PCBs, and PFAS. Development of this technical journal article is an ongoing activity that has proceeded under multiple previous work assignments. The current draft technical journal article is fully developed, and it has undergone review, revision, and approval by coauthors, by internal peer reviewers, and by OST managers at the Branch, Division, and Office levels. OW approval for submitting the technical journal article for publication has been pending since March 2019. The EPA TOCOR will provide a file containing the current version of the technical journal article. Contractor support for completing this existing technical journal article shall consist of, but not be limited to, the following activities:

- Incorporating OW management and other applicable EPA management review comments to produce a revised draft article (i.e., the OW-approved draft article) to prepare it for submission to a technical journal,
- Providing information to be used as a basis for technical journal selection,
- Formatting the OW-approved draft article to meet the selected technical journal requirements,
- Completing the logistics for submitting the OW-approved draft journal article,
- Incorporating comments from journal external peer reviewers to produce a draft final article for final EPA management clearance,
- Revising the draft final journal article based on final EPA management comments (if applicable) to produce the final journal article,
- Resubmitting the final article to the journal editor for publication,
- Compiling comments from external peer reviewers and the journal editor and preparing a spreadsheet that includes their full set of comments and coauthor responses to each comment for submission with the final technical journal article, and
- Reviewing galley proofs of the journal article to identify final article edits, then compiling and submitting the final edits to the journal editor.

All 2013-14 NRSA Fish Tissue Study results journal article drafts and related deliverables (e.g., comment response spreadsheets) listed above will be subject to EPA TOCOR review and approval. The final revision of the 2013-14 NRSA Fish Tissue Study journal article and the galley proof edits will also be subject to EPA TOCOR review and approval as indicated in the TO general requirements section before Contractor submission of these deliverables to the technical journal editor.

Subtask 3.2: Report 2010 GLHHFTS and 2015 GLHHFFTS Data

The Contractor shall provide support for reporting 2010 GLHHFTS and 2015 GLHHFFTS data. This support shall consist of providing technical and logistical support for revising an existing technical journal article reporting 2010 GLHHFTS fish tissue data for mercury, PCBs, and polybrominated diphenyl ethers (PBDEs) to incorporate reporting of 2015 GLHHFFTS fish tissue data for mercury, PCBs, dioxins and furans, and PFAS into the existing technical journal article. Revision of the existing technical journal article is a new activity that is being initiated under this Task Order. The EPA TOCOR will provide a file containing the existing technical journal article and files required for incorporating 2015 GLHHFFTS fish tissue data and other applicable revisions into a revised technical journal article that combines final data reporting for

the 2010 and 2015 Great Lakes human health fish tissue studies. Contractor support for revising the existing technical journal article shall consist of, but not be limited to, the following activities:

- Preparing a first draft article revision for EPA TOCOR review,
- Incorporating EPA TOCOR comments into the first draft article revision to produce a second draft article revision for coauthor review,
- Incorporating coauthor comments into the second draft article revision to produce a third draft article revision for internal peer review,
- Incorporating comments from internal peer reviewers into the third draft article revision to produce a fourth draft article revision for EPA management review,
- Compiling internal peer reviewer comments and preparing a spreadsheet that includes their full set of their comments and coauthor responses to each comment,
- Incorporating EPA management comments into the fourth draft article revision to produce a series of at least four more draft article revisions (based on multiple levels of EPA management reviews, including reviews at the Branch, Division, OST, and OW levels) and using the final draft article revision in this series (i.e., the OW-approved draft revised article) to prepare it for submission to a technical journal,
- Providing information to be used as a basis for technical journal selection,
- Formatting the OW-approved draft revised article to meet the selected technical journal requirements,
- Completing the logistics for submitting the OW-approved draft revised journal article,
- Incorporating external peer reviewer comments into the OW-approved draft revised journal article to produce the draft final revised article for final EPA management clearance,
- Revising the draft final revised article based on final EPA management comments (if applicable) to produce the final revised journal article,
- Resubmitting the final revised article to the journal editor for publication,
- Compiling comments from external peer reviewers and the journal editor and preparing a spreadsheet that includes their full set of comments and coauthor responses to each comment for submission with the final revised technical journal article, and
- Reviewing galley proofs of the final revised article to identify final article edits, then compiling and submitting the final edits to the journal editor.

All revised journal article drafts reporting 2010 GLHHFTS and 2015 GLHHFFTS data and related deliverables (e.g., comment response spreadsheets) listed above will be subject to EPA TOCOR review and approval. The final revised journal article reporting data from both Great Lakes studies and the galley proof edits will also be subject to EPA TOCOR review and approval as indicated in the TO general requirements section before Contractor submission of these deliverables to the technical journal editor.

Subtask 3.3: Report Fish Plug Evaluation Study Data

The Contractor shall provide support for reporting Fish Plug Evaluation Study data. This support shall consist of providing technical and logistical support to complete development of a technical journal article reporting Fish Plug Evaluation Study data from the mercury and

selenium phases of the study. Development of this technical journal article is an ongoing activity that began with preparation of a first draft journal article under a previous work assignment (WA 2-06 under Contract No. EP-C-17-024). The EPA TOCOR will provide a file containing the existing first draft of the journal article and data files from the Fish Plug Evaluation Study. Contractor support for completing the technical journal article shall consist of, but not be limited to, the following activities:

- Incorporating EPA TOCOR comments into the first draft article to produce a second draft article for coauthor review,
- Incorporating coauthor comments into the second draft article to produce a third draft article for internal peer review,
- Incorporating internal peer reviewer comments into the third draft article to produce a fourth draft article for EPA management review,
- Compiling internal peer reviewer comments and preparing a spreadsheet that includes their full set of comments and coauthor responses to each comment,
- Incorporating EPA management comments into the fourth draft article to produce a series of at least four more draft articles (based on multiple levels of EPA management reviews, including reviews at the Branch, Division, OST, and OW levels) and using the final draft article in this series (i.e., the OW-approved draft article) to prepare it for submission to a technical journal,
- Providing information to be used as a basis for technical journal selection,
- Formatting the OW-approved draft article to meet the selected technical journal requirements,
- Completing the logistics for submitting the OW-approved draft journal article,
- Incorporating external peer reviewer comments into the OW-approved draft journal article to produce the draft final article for final EPA management clearance,
- Revising the draft final article based on final EPA management comments (if applicable) to produce the final journal article,
- Resubmitting the final article to the journal editor for publication,
- Compiling comments from external peer reviewers and the journal editor and preparing a spreadsheet that includes their full set of comments and coauthor responses to each comment for submission with the final technical journal article, and
- Reviewing galley proofs of the final journal article to identify final article edits, then compiling and submitting the final edits to the journal editor.

All FPES technical journal article drafts reporting the study results and related deliverables (e.g., comment response spreadsheets) listed above will be subject to EPA TOCOR review and approval. The FPES final technical journal article and the galley proof edits will also be subject to EPA TOCOR review and approval, as indicated in the TO general requirements section before Contractor submission of these deliverables to the technical journal editor.

DELIVERABLES AND SCHEDULE

The Contractor shall provide all written deliverables, such as documents, reports, and summaries, in both electronic and hard copy form or as detailed by the EPA TOCOR in written technical direction. The Contractor shall ensure that all software and fonts used to develop deliverables are readily available on the OST computer network and compatible with OST printer systems.

The Contractor shall follow the quality assurance management plan under Contract Number 68HERC20D0016 and any applicable fish contamination study QAPPs in preparing work assignment deliverables. The Contractor shall adhere to the specifications summarized under the General Requirements section of this PWS and those specified under this section of the PWS in producing deliverables under this work assignment.

- The Contractor shall subject all written deliverables to QA/QC measures, including proofreading, grammar, readability, consistency of style, consistent formats of tables and figures, etc.
- The Contractor shall produce deliverables submitted on an annual, quarterly, monthly, or weekly basis in a format that is identical to formats used for these deliverables in earlier years of a study unless otherwise specified by the EPA TOCOR. The EPA TOCOR will provide copies of past deliverables to serve as templates for developing these periodic deliverables.
- The Contractor shall produce hard copy deliverables on bright white bond paper that contains no more than 50% recycled stock.

Routine delivery of deliverables shall be by email for electronic copies and by overnight mail for hard copies unless another alternative is specifically requested by the EPA TOCOR through written technical direction. Below is a summary of deliverables and schedule for Tasks 1-3. Note that the number of days specified for deliverables refers to business days.

TASK	DELIVERABLES	SCHEDULE
1	Task Order monthly progress reports	As specified in Contract No. 68HERC20D0016
2	Statistical analysis input file initial QC review report	One week after receipt of draft input file from EPA TOCOR
	Statistical analysis input file final QC review report	2 days after receipt of final input file from EPA TOCOR
2	Statistical analysis output file initial QC review report	Two weeks after receipt of draft output file from EPA TOCOR
	Statistical analysis output file final QC review report	One week after receipt of draft output file from EPA TOCOR
2	Draft results summaries for each applicable EPA human health fish tissue study	Three weeks after Contractor completes final QC review report

	Final results summaries for each applicable EPA human health fish tissue study	for each set of statistical analysis output files One week after receipt of comments from EPA TOCOR
2	Draft EPA fish contamination study graphics for interim and final reports Final EPA fish contamination study graphics for interim and final reports	As specified in EPA TOCOR written technical direction One week after receipt of EPA TOCOR comments on draft graphics
3	Revised draft 2013-14 NRSA Fish Tissue Study results journal article based on OW management comments Information for technical journal selection Draft article based on OW revisions formatted to meet technical journal requirements Submission of reformatted draft 2013-14 Fish Tissue Study results article to selected technical journal Draft final journal article based on external peer reviewer comments External peer reviewer comment response spreadsheet Final journal article based on final EPA management review comments Final 2013-14 NRSA Fish Tissue Study results article submission to the journal editor Final edits to galley proofs of journal article to the journal editor	8 days after EPA TOCOR provides OW management comments 2 days after Contractor submits revised article based on OW comments One week after technical journal selection 3 days after reformatting journal article 8 days prior to journal editor deadline 3 days prior to journal editor deadline 2 days prior to journal editor deadline By journal editor deadline By journal editor deadline
3	First draft 2010 and 2015 Great Lakes human health fish studies results journal article for EPA TOCOR review	As specified in EPA TOCOR written technical exchange

Second draft journal article for coauthor review	One week after receipt of EPA TOCOR comments
Third draft 2010 and 2015 Great Lakes HH fish studies results journal article for internal peer review	One week after receipt of coauthor comments from EPA TOCOR
Fourth draft journal article for EPA management review	One week after receipt of internal peer reviewer comments from EPA TOCOR
Internal peer reviewer comment response spreadsheet	One week after receipt of internal peer reviewer comments from EPA TOCOR
Fifth, sixth, and seventh draft journal articles	3 days after receipt of each set of EPA manager comments from the EPA TOCOR
Revised draft article based on OW management comments	8 days after receipt of OW comments from EPA TOCOR
Information for technical journal selection	2 days after Contractor submits draft article based on OW revisions
Reformatted draft article to meet technical journal requirements	One week after technical journal selection
Submission of reformatted draft 2010 and 2015 Great Lakes HH fish studies results article to selected technical journal	3 days after reformatting journal article
Draft final journal article based on external peer reviewer comments	8 days prior to journal editor deadline
External peer reviewer comment response spreadsheet	3 days prior to journal editor deadline

	<p>Final journal article based on final EPA management review comments</p> <p>Final 2010 and 2015 Great Lakes HH fish studies results article submission to the journal editor</p> <p>Final edits to galley proofs of 2010 and 2015 Great Lakes HH fish studies results article to the journal editor</p>	<p>2 days prior to journal editor deadline</p> <p>By journal editor deadline</p> <p>By journal editor deadline</p>
3	<p>Second, and third drafts of the FPES results journal article</p> <p>Fourth draft journal article for EPA Management review</p> <p>Internal peer reviewer comment response spreadsheet</p> <p>Fifth, sixth, and seventh drafts of FPES results journal article</p> <p>Revised draft article based on OW management comments</p> <p>Information for technical journal selection</p> <p>Reformatted draft article to meet technical journal requirements</p> <p>Submission of reformatted draft FPES results article to selected technical journal</p>	<p>As per schedule developed under Contract EP-C-17-024 WA 2-06</p> <p>One week after receipt of internal peer reviewer comments from EPA TOCOR</p> <p>One week after receipt of internal peer reviewer comments from EPA TOCOR</p> <p>3 days after receipt of each set of EPA manager comments from the EPA TOCOR</p> <p>8 days after receipt of OW comments from EPA TOCOR</p> <p>2 days after Contractor submits draft article based on OW revisions</p> <p>One week after technical journal selection</p> <p>3 days after reformatting journal article</p>

	Draft final FPES results journal article based on external peer reviewer comments	8 days prior to journal editor deadline
	External peer reviewer comment response spreadsheet	3 days prior to journal editor deadline
	Final journal article based on final EPA management review comments	2 days prior to journal editor deadline
	Final FPES results article submission to the journal editor	By journal editor deadline
	Final edits to galley proofs of journal article	By journal editor deadline

GENERAL REQUIREMENTS OF THE TASK ORDER AND SCHEDULE

Limitation of Contractor Activities: The Contractor shall submit drafts of all deliverables to the TOCOR for review prior to submission of the final product. These drafts will clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support any conclusions and recommendations. The Contractor shall incorporate all TOCOR comments into all final deliverables, unless otherwise agreed upon by the TOCOR. The Contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), CLCOR, and TOCOR.

Deliverable Formatting: All memos, draft comments, summaries and responses, and chapters are to be provided in electronic form using Word and/or Excel/Access, ArcView, or, in special cases another software program agreed to by the TOCOR. Memos are to be written in a manner which will make them easy to conform into draft chapters for the Final Report. For deliverables that are in Word or pdf versions of Word documents, that are intended to be shared with management or the public, the Contractor shall use decimal align in all tables containing columns of numbers of varying digits, whether decimal places are reported or not. All final materials, e.g., memos, chapters, etc. are to be prepared only after receiving written technical direction from the TOCOR and formatted to be in compliance with Section 508 Amendment to the Rehabilitation Act of 1973.

Technical Direction: The Contract level COR is permitted to provide technical direction. Technical direction must be within the statement of work of the contract, not increase cost, and includes: (1) Direction to the Contractor which assists the Contractor in accomplishing the PWS, (2) Comments on and approval of reports or other deliverables. Technical direction will be issued in writing or confirmed in writing within five (5) calendar days after verbal issuance. One copy of the technical direction memorandum will be forwarded to the Contracting Officer and the Contract Level Contracting Officer Representative.

Work conducted under this Task Order shall not duplicate work conducted under any other Task Order or Work Assignment under any other contract. As required, the EPA TOCOR will provide technical direction in accordance with Clause H-19 of the contract, EPAAR 1552.237-71 TECHNICAL DIRECTION (AUG 2009) and the Contract Level Performance Work Statement (PWS).

Confidential Business Information: For this Task Order, the Contractor shall not be accessing any Confidential Business Information (CBI).

Budget Reporting: The Contractor shall report to the TOCOR and Contract Level COR (CLCOR) when 85 percent of the total budget for this Task Order has been depleted.

Travel: The Contractor shall provide specific travel details and costs for any travel directly chargeable under this WA and must submit it for travel approval by the TOCOR and the Contract-Level COR (CLCOR) before each trip occurs (as specified by the contract per clause H.33). All travel under this TO shall follow contract requirements. During this TO performance period, EPA does not anticipate local or long-distance travel for the Contractor.

Printing: All copying and printing shall be accomplished within the limitations of the printing clause of the contract.

Identification as Contracting Staff: To avoid the perception that Contractor personnel are EPA employees, the Contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and prior to the start of any meeting. The Contractor personnel are prohibited from acting as the Agency's official representative. When speaking with the public, the Contractor shall refer all interpretations of policy to the TOCOR.

Conference/Meeting Guidelines and Limitations: The EPA projects that none of the individual meetings identified in these tasks will exceed a total cost of \$20,000. The Contractor shall immediately notify the EPA Contracting Officer, CL-COR and TOCOR of any anticipated individual event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur \$20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.

The EPA will assess Contractor performance in accordance with the Quality Assurance Surveillance Plan (QASP), Attachment 1 to this PWS.

Attachments:

1. Contract Level QASP

ATTACHMENT 1

QUALITY ASSURANCE SURVEILLANCE PLAN

“Technical Support for Assessing, Managing, and Communicating the Ecological and Human Health Risks of Contaminants in Water, Fish, and Sediments, and of Microbial Pathogens in Surface Waters”

Purpose: The requirements performed under this contract are considered performance-based, focusing on the Agency’s desired results and outcomes. The Contractor shall be responsible for determining the most effective means by which these requirements will be fulfilled. In order to fulfill the requirements, the Contractor shall design innovative processes and systems that can deliver the required services in a manner that will best meet the Agency’s performance objectives. This performance-based requirement represents a challenge to the Contractor to develop and apply innovative and efficient approaches for achieving results and meeting or exceeding the performance objectives, measures, and standards described below. The Contractor’s performance will be reflected in the positive or negative evaluation offered by the Agency in the Contractor Performance Evaluation (CPE) which is evaluated annually (per the “Contractor Performance Evaluation” clause in the contract). The TOCOR shall submit a complete annual review of the areas outlined in the Quality Assurance Surveillance Plan (QASP), included in the contract, which will then be utilized by the Contract Level Contracting Officer’s Representative (CL-COR) in preparing the overall evaluations submitted annually in response to the CPE requirements in the contract. The TOCOR for each individual task order will provide the review of the deliverables at the location specified in the identified task order.

General Management and Administration			
Performance Requirement	Measurable Performance Standards	Surveillance Methods	Incentives/Disincentives
Management and Communications: The Contractor shall maintain contact with the EPA Contracting Officer (CO), Contracting Officer’s Representative (COR), and Task Order COR (TOCOR) throughout performance of the contract and shall immediately bring potential problems to the attention of the appropriate EPA TOCOR. In cases where issues have a direct impact on project schedules and/or cost, the Contractor shall provide options for EPA’s consideration on resolving or mitigating the impacts.	Any issues that impact project schedules and/or cost shall be brought to the attention of the appropriate EPA TOCOR within 3 business days of occurrence.	100% of active task orders under the contract will be reviewed by the EPA TOCOR monthly (via Monthly Progress Report) to identify unreported issues. The EPA TOCOR will report any issues to the EPA COR, who will bring the issue(s) to the Contractor’s attention through the EPA CO.	<p>Unsatisfactory rating under the category of Business Relations in the Contractors Performance Appraisal Review System (CPARS) if two or more incidents occur during an applicable period of performance when the Contractor does not meet the measurable performance standards.</p> <p>Fewer than two incidents per contract period where the contractor does not meet the measurable performance standard will be considered satisfactory</p>

			performance and will be reported as such in the CPARS Performance Evaluation System under the category of Business Relations.
Timeliness: Services and deliverables shall be in accordance with schedules stated in each task orders, unless amended or modified by an approved EPA action.	During any period of performance, 90% of all submitted deliverables shall be submitted no later than one business day past the due date.	100% of active task orders under the contract will be reviewed by the EPA TOCOR monthly (via Monthly Progress Report & milestones established for each deliverable) to compare actual delivery dates against the approved delivery dates. The EPA TOCOR will report any issues to the EPA COR, who will bring the issue(s) to the Contractor's attention through the EPA CO.	Unsatisfactory rating under the category of Timeliness in the CPARS when the Contractor does not meet the measurable performance standards during an applicable period of performance. A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of Timeliness if the contractor meets the measurable performance standards.
Cost Management and Control: The Contractor shall monitor, track and accurately report level-of-effort, labor cost, and other direct cost to EPA through progress reports and approved special reporting requirements. The Contractor shall assign appropriately leveled and skilled personnel to all tasks, practice and encourage time management, and ensure accurate and appropriate timekeeping.	The Contractor shall manage costs to the level of the approved ceiling on the task orders. The Contractor shall notify the EPA TOCOR/COR when 75% of the approved funding ceiling for the work assignment is reached.	The EPA COR will routinely meet with the Contractor's Project Manager to discuss the work progress, and the contract and individual task order expenditures. The EPA COR shall review the Contractor's Monthly Progress Reports and request the TOCOR's verification of expenditures and technical progress before authorizing invoice payments.	Unsatisfactory rating under the category of Cost Control in the CPARS when the Contractor does not meet the measurable performance standards during an applicable period of performance. A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of Cost Control if the contractor meets the measurable performance standards and accurately reports the costs in the progress reports according to the requirements in the "Reports of Work" attachment to the Contract.
Technical Effort: The analyses or products developed by the Contractor shall be factual, defensible, and based on sound science and engineering.	All (100%) analyses conducted for EPA by the Contractor must be factual and based on sound science and	EPA will review all analyses conducted and products prepared by the Contractor and will independently	Unsatisfactory rating under the category of Quality of Product or Service in the CPARS when the Contractor does not meet the measurable

<p>All data shall be collected from reputable sources; quality assurance measures shall be conducted in accordance with contract and Agency requirements, and any additional requirements outlined in individual task orders or technical directives. Any work requiring the Contractor to provide options or recommendations shall include the rationale used in selecting the option/recommendation and all other options and recommendations considered.</p>	<p>engineering. All analyses and products (initial and final drafts) shall conform in format and content to requirements specified by the TOCOR in written technical direction, and should meet the objectives stated in the task order. All initial draft documents shall be clearly written at a level appropriate to the targeted audience. All information shall be factual, technically sound, and accurate, with data sources identified.</p>	<p>consider their merit. EPA may opt to peer review analyses to further validate their merit.</p>	<p>performance standards during an applicable period of performance, even after review input and follow up discussion by Agency personnel.</p> <p>A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of Quality of Product or Service if the contractor meets the measurable performance standards.</p>
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<p>Quality Assurance/Quality Control (QA/QC): The Contractor shall comply with the quality assurance requirements specified in <i>EPA Requirements for Quality Assurance Project Plans</i> (http://www.epa.gov/quality/qs-docs/r5-final.pdf) and as required by the EPA TOCOR. The Contractor shall assign appropriately leveled and skilled technical and quality assurance personnel to develop a Quality Assurance Project Plan (QAPP) for all tasks requiring collection or use of environmental data.</p> <p>The QAPP shall be developed in consultation with the EPA TOCOR, and fully approved by the appropriate EPA personnel, before initiation of activities involving environmental data collection or use.</p> <p>Any change in the planned environmental data activities that become necessary during the course of the project shall be fully documented in approved revised versions of the QAPP prior to their implementation.</p>	<p>The Contractor shall notify the EPA TOCOR of any issues that impact project quality within 3 business days of occurrence.</p> <p>The Contractor shall notify the EPA TOCOR and COR within 5 business days of occurrence of any requests to collect or use environmental data without an EPA-approved QAPP.</p> <p>The Contractor shall document all QA/QC activities, including compliance with the quality objectives specified in the QAPP, in Monthly Progress Reports.</p>	<p>100% of active task orders under the contract will be reviewed by the EPA TOCOR monthly (via Monthly Progress Report) to assess contractor compliance with the approved QAPP, and to identify unreported issues related to project quality and requests to collect or use environmental data without an EPA-approved QAPP. The EPA TOCOR will report any issues to the EPA QAO and COR, who will bring the issue(s) to the Contractor's attention through the EPA CO for immediate resolution.</p>	<p>Unsatisfactory rating under the category of Quality Assurance/Quality Control in the CPARS if more than three incidents occur during an applicable period of performance when the Contractor does not meet the measurable performance standards.</p> <p>A satisfactory rating will be reported in the CPARS Performance Evaluation System under the category of Quality Assurance/Quality Control if the contractor meets the measurable performance standards.</p>
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AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00001		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO.	
5. PROJECT NO. (If applicable)		6. ISSUED BY CAD		7. ADMINISTERED BY (If other than Item 6) CODE	
CAD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: W136 Cincinnati OH 45268-0001		8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) TETRA TECH, INC. Attn: Andrew Parker 10306 EATON PL STE 340 FAIRFAX VA 220302201		9A. AMENDMENT OF SOLICITATION NO. 9B. DATED (SEE ITEM 11)	
CODE 198549560		FACILITY CODE		10A. MODIFICATION OF CONTRACT/ORDER NO. 68HERC20D0016 68HERC20F0366 10B. DATED (SEE ITEM 13) 09/14/2020	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

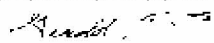
CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
X	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
DUNS Number: 198549560
TOCOR: Leanne Stahl Max Expire Date: 09/15/2021 Invoice Approver: Leanne Stahl Alt Invoice App: John Healey
The purpose of this modification is to incorporate the attached EPA blanket administrative modification signed by Raoul Scott on July 30, 2020. All other terms and conditions remain unchanged.

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Gerold D. Young	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	16C. DATE SIGNED 09/30/2020

NAME OF OFFEROR OR CONTRACTOR
TETRA TECH, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711 Period of Performance: 09/16/2020 to 09/15/2021				

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE		PAGE	OF	PAGES
2. AMENDMENT/MODIFICATION NUMBER		3. EFFECTIVE DATE 08/13/2020	4. REQUISITION/PURCHASE REQUISITION NUMBER		5. PROJECT NUMBER (If applicable)		
6. ISSUED BY Raoul D. Scott, Director OMS/ARM/OAS/Policy, Training and Oversight Division US Environmental Protection Agency, Mail Code 3802R 1200 Pennsylvania Avenue, NW Washington, DC 20004		CODE	7. ADMINISTERED BY (If other than Item 6)		CODE		
8. NAME AND ADDRESS OF CONTRACTOR (Number, street, county, State and ZIP Code) To All EPA Contractors			<input checked="" type="checkbox"/> (X)		9A. AMENDMENT OF SOLICITATION NUMBER		
			<input type="checkbox"/>		9B. DATED (SEE ITEM 11)		
			<input checked="" type="checkbox"/> (X)		10A. MODIFICATION OF CONTRACT/ORDER NUMBER To all EPA Contracts and Orders		
			<input type="checkbox"/>		10B. DATED (SEE ITEM 13)		
CODE		FACILITY CODE					

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
 (a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted;
 or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

**13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NUMBER AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NUMBER IN ITEM 10A.
<input type="checkbox"/>	
<input checked="" type="checkbox"/> (X)	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
<input type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

This contract/order is being modified in accordance with the applicability instructions in interim FAR Case 2019-009, and FAR 4.2105, requiring contracting officers to include FAR clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

See attached for the full text version of FAR 52.204-25. Contractor Acknowledgment of receipt required.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Raoul D. Scott, Director Policy, Training and Oversight Division	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA RAOUL SCOTT Digitally signed by RAOUL SCOTT Date: 2020.07.30 11:40:17 -04'00'	16C. DATE SIGNED
(Signature of person authorized to sign)		(Signature of Contracting Officer)	

Previous edition unusable

STANDARD FORM 30 (REV. 11/2016)
Prescribed by GSA FAR (48 CFR) 53.243

52.204-25 Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

As prescribed in 4.2105(b) and in the applicability instructions in interim FAR Case 2019-009, insert the following clause:

Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Aug 2020)

(a) Definitions. As used in this clause—

Backhaul means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (e.g., connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (e.g., fiber optic, coaxial cable, Ethernet).

Covered foreign country means The People's Republic of China.

Covered telecommunications equipment or services means—

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Critical technology means—

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled-

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Interconnection arrangements means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (e.g., connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

Reasonable inquiry means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

Roaming means cellular communications services (e.g., voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) Prohibition. (1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The Contractor is prohibited from providing to the Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing a contract, with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract.

(c) *Exceptions.* This clause does not prohibit contractors from providing—

(1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) Reporting requirement.

(1) In the event the Contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the Contractor is notified of such by a subcontractor at any tier or by any other source, the Contractor shall report the information in paragraph (d)(2) of this clause to the Contracting Officer, unless elsewhere in this contract are established procedures for reporting the information; in the case of the Department of Defense, the Contractor shall report to the website at <https://dibnet.dod.mil>. For indefinite delivery contracts, the Contractor shall report to the Contracting Officer for the indefinite delivery contract and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at <https://dibnet.dod.mil>.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause

(i) Within one business day from the date of such identification or notification: the contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts*. The Contractor shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

(End of clause)